

Analysis of extracellular proteins in biofilms of *Staphylococcus epidermidis* clinical isolates

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Staphylococcus epidermidis is a coagulase-negative staphylococcus (CNS) that often colonizes the skin and mucous membranes of the human body as part of its normal microflora. However, these staphylococci have emerged in recent years as one of the main nosocomial pathogens associated with infections of implanted medical devices, namely prosthetic heart valves and joints, central venous catheters, urinary catheters, contact lenses and hip prostheses. *S. epidermidis* adheres to such devices and has the ability to develop biofilms, which constitutes an important virulence factor in its pathogenesis. These infections are often difficult to treat, due to the reduced bactericidal activity of antibiotics within a biofilm and an increase in antibiotic resistance among clinical isolates. Cells in highly structured matrix-enclosed communities, such as biofilms, express different protein profiles from their planktonic counterparts. Thus, the knowledge of these proteins is extremely important to determine new targets for controlling bacterial infections, considering the increasing lack of effectiveness of antibiotics. It is also essential to find their role in the adhesion and biofilm formation processes.

The aim of this work was to analyse the expression profile of the proteins present in the extracellular matrix of biofilms of four different *S. epidermidis* clinical strains. The biofilms were formed in 2 cm x 2 cm acrylic coupons, during eight days, under constant agitation and replacing the medium every 12 hours. The extraction of the exopolymeric matrix, containing the proteins, was assessed using the Dowex resin extraction method. The protein profile of the biofilm matrix of each strain was analysed by sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE) using silver staining and some differences in the protein profile of the biofilm matrices have already been detected. Two-dimensional gel electrophoresis (2D-GE) and mass spectrometry analysis are also being performed in order to acquire more detailed results.